

REMARKS

This is in response to the United States Patent and Trademark Office Action mailed June 23, 2003.

By said Office Action, claims 8-14, 16, 17, 22-29, and 48 – 99 were withdrawn in response to Applicant's election, and claims 1-7, 15, 18-21, and 30 - 47 were rejected.

Claims 1-5, 7, 15, 20, 21, 30, 31 and 33 – 36 were rejected under 35 USC 102(b) as being anticipated by Giesemann (US Patent 5,431,996).

Claims 1-6, 15, and 31 – 36 were rejected under 35 USC 102(b) as being anticipated by Daigle et al. (US Patent 3,961,110).

Claims 1-6, 15, and 18 - 20 were rejected under 35 USC 102(b) as being anticipated by Stanislawczyk (US 4,929,495).

Claims 37 - 47 were rejected under 35 USC 103(a) as being unpatentable over Giesemann (US Patent 5,431,996).

Applicant respectfully traverses these rejections.

*Claim Rejection under 35 USC 102(b) as Being Anticipated by Giesemann:*

Reconsideration and allowance of claims 1-5, 7, 15, 20, 21, 30, 31 and 33 – 36 over Giesemann. While traversing the above rejection, Applicant, in the interest of expediting the allowance of the application, has amended claim 1 to further distinguish over the prior art to recite as follows:

"a coating which is applied in a controlled and tunable manner and which adheres to said surfaces and internal structure, thus increasing said specific weight by a predetermined, tunable factor." (Emphasis added)

Thus, in accordance with the present invention, a controlled range of weight gains may be produced, from which an optimal value may be selected. This controlled range is illustrated, for example, in Figures 5A - 8 of the present application.

In contrast, Giesemann does not teach applying the coating in a controlled and tunable manner, nor tuning the weight gain by a predetermined

factor, nor producing a range of weight gains, from which an optimal value may be selected. Rather, according to according to the teachings of Giesemann, see Column 5 line 68 through Column 6 line 4,

*"This nonwoven is immersed for some seconds into a sodium silicate solution... then taken out and dried..."*

and again at Column 6, line 16,

*"After removal, a small portion of suspension drains off, and the slab is again dried..."*

In other words, according to Giesemann, the weight gain is whatever it happens to be with no particular action on Giesemann's part, and any variations between products are not intentional inasmuch as they are not controlled.

**Claim Rejection under 35 USC 102(b) as Being Anticipated by Daigie:**

Reconsideration and allowance of claims 1-6, 15, and 31-36 over Daigie et al is respectfully requested. While traversing the above rejection, Applicant, in the interest of expediting the allowance of the application, has amended claim 1 to recite the controlled and tunable features as discussed hereinabove with respect to Giesemann. As with Giesemann, Daigie et al do not teach applying the coating in a controlled and tunable manner, nor tuning the weight gain by a predetermined factor, nor producing a range of weight gains, from which an optimal value may be selected. The allowance of these claims over Daigie is deemed to be in order.

**Claim Rejection under 35 USC 102(b) as Being Anticipated by Stanislawczyk:**

Reconsideration and allowance of claims 1-6, 15, and 18-20 over Stanislawczyk is respectfully requested. While traversing the above rejection, Applicant, in the interest of expediting the allowance of the application has amended claim 1 to recite the controlled and tunable features as discussed hereinabove with respect to Giesemann. As with Giesemann and Daigie et al, Stanislawczyk does not teach applying the coating in a controlled and tunable manner, nor tuning the weight gain by a predetermined factor, nor producing a

range of weight gains, from which an optimal value may be selected. The allowance of these claims over Stanislawczyk is deemed to be in order.

**Claim Rejection under 35 USC 103(a) over Giesemann:**

The examiner has rejected claims 37 – 47 under 35 USC 103(a), as unpatentable over Giesemann, since, according to the examiner, it would be obvious to one of ordinary skill in the art to vary the amount of coating in the composite, to adjust the stiffness and flammability of the material, to fall within the claimed ranges.

However, Giesemann does not teach nor suggest how such varying can be performed and more important, controlled, so as to be tunable. As pointed hereinabove, Giesemann lets the weight gain be whatever it may be, by immersing the material in a *sodium silicate solution*, then removing the material and allowing excess solution to drain off, naturally.

By contrast, the present invention specifically teaches how the weight gain is to be controlled, and tuned, and why. Specifically, Figure 2A of the present application illustrates a special device intended for this purpose. The figure illustrates two rollers, 51 and 53, adapted for wringing out excess coating from the material. Moreover, a distance  $r$  between rollers 51 and 53 is adjustable, to control the increase in weight, as taught in conjunction with Figure 2A, as follows:

*"Material 12 exits bath 46, via conveyer belt 44, which includes a roller system 50, having first and second rollers 51 and 53, set with a spacing  $r$  between them, operative to wring out excess solution 48. According to a preferred embodiment of the present invention, the factor by which specific weight  $W$  is increased is predetermined by distance  $r$  of roller system 50. Additionally, distance  $r$  may be varied to control the increase in specific weight. "*

In accordance with the present invention, the specific weight increase, which is controlled by distance  $r$ , is key to the superior sound absorbing

qualities of the sound absorbing article of the present invention, for example, as seen in Figure 6, where a maximum NRC value is obtained at a weight increase factor of about 5.4.

The examiner was of the opinion that discovering an optimal value from a given range of values, where that range of values is provided beforehand, involves only routine skill in the art. Applicant respectfully traverses this opinion.

Applicant respectfully urges that producing a controlled range of values, from which an optimal value may be selected is not obvious and cannot be considered routine. The present invention relates to a sound absorbing article, comprising a coating which is applied in a controlled and tunable manner, to increase the specific weight by a predetermined, tunable factor. In this manner, a range of weight gains is produced, from which an optimal value may be selected.

The allowance of Claims 1-7, 15, 18-21 and 30-47 is therefore deemed to be in order and such action is respectfully requested.

Respectfully submitted,



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